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REPORTS

ON REVIEW:

17 Word Processing Programs
Part One

Guideposts in the software jungle

For many users, word-processing is the primary function to which their computer is devoted. Typically, they rely on a single word processing (WP) program. Yet even the most loyal devotee of WordStar or Perfect Writer, whose program came bundled with the computer, may find his interest piqued by the multitude of computer magazine advertisements for WP software.

This article undertakes to provide guidance through the WP software jungle. It is based on a comparative review and hands-on testing of 17 packages, representative of different price ranges and hardware. Several programs used regularly by the authors in their work also were included in the comparison. Summary information on the programs is presented in the accompanying table.

Software functions

A WP program typically consists of three major functional blocks: a text editor, used to create and reshape the document; a print formatter, used to prepare the document for output and to accomplish the actual tasks of printing; and a "housekeeping" utility, used to manipulate the documents stored on the data disk. They are implemented with varying degrees of sophistication. In some packages, the number of options and level of flexibility offered the user vary sharply

PROTECTING YOUR MICROCOMPUTER
Measures to reduce electrical noise

There are several steps you can take to help reduce line and ambient noise, as well as possible physical damage to your microcomputer system. Power line noise is generated and transmitted along the electrical wires, whereas ambient noise is "found" within the air surrounding the microcomputer system.

• Unless you use an uninterruptible power supply unit, use a *dedicated* electrical power line for the microcomputer system, that is, an electrical line not used by any other electrical equipment that can create noise, even an electric clock. A

15-ampere line with its own fuse or circuit breaker is a start. A dedicated line will *not* solve the problems, but it will help to reduce or isolate them.

• All units of the microcomputer system should be plugged into the same electrical line or power source. This will help reduce noise between the units caused by different-phase electrical cycles and will provide a common ground.

• Do *not* switch all your equipment on simultaneously, even if you have a single on-off switch for the system. It is far safer

DATA BRIEFS...

○ **Free computer camp directory.** "Camps n' Computers – A Directory of Summer Computer Camp Instruction in the United States" is available at no cost (but send $1, payable to Verbatim, for postage and handling). Sponsored by Verbatim Corp. in cooperation with the American Camping Association, this 48-page booklet lists approximately 115 camps. Information given for each camp includes tuition fee, length of session, recreational facilities, number and types of instructional computers on site, student/computer ratio, instructors' qualifications, and number of computer hours available daily to campers. Write to: *Camps n' Computers, Suite 228, 4966 El Camino Real, Los Altos, CA 94022.*

○ **Want to know more about your roots?** Genealogical research is the special interest of the Quinsept User Group which publishes a quarterly newsletter devoted to genealogical matters and their computerization. Annual membership, which includes a subscription to the newsletter (slated to go bi-monthly in the near future), is $15. *Quinsept User Group, 5855 Santa Teresa Blvd., San Jose, CA 95123.*

○ **American Association of Microcomputer Investors, Inc. (AAMI),** a non-profit organization helps investors use their microcomputer to choose better investments. Membership dues are $49/yr. Benefits include a subscription to the AAMI Journal; a directory of investment software, updated quarterly; free computer programs, and discounts on investment software. Study guides and disks are also available. *American Association of Microcomputer Investors, Inc., P.O. Box 1384, Princeton, NJ 08542. 609/921-6494.*

○ **Everything you always wanted to know about your kids' grades...** is now reported on detailed computer printouts. Approximately 80 school districts nationwide now use microcomputers to help teachers determine and

from block to block.

Features (functions) found in WP software fall into three broad categories: basic, advanced, and exceptional. The presence or absence of a sufficient number of features may be a deciding factor in your purchase decision.

Basic (core) features

Without these a WP program is not even in the running:

• **Full screen editing** allows you to write on the screen as if on a page of paper, and to correct any portion of text.

• **Word-wrap** moves text automatically to the next line when typing; a carriage return need be pressed only at the end of the last line of the entire paragraph.

• **Quick movement through the document** by moving the cursor or by scrolling (shifting the document on the screen without moving the cursor).

• **Insertion and deletion of text** permits easy addition of material by insertion and/or overwriting existing text. It also makes it easy for characters, words, phrases and lines to be deleted.

• **Reformatting** when a command is issued to close up text after editing. In some programs, this is done on-screen; in others, as part of the print-time formatting.

• **Search and replace** can specify and substitute for single characters, words or phrases, on all occurrences in the document.

• **"Cut and paste"** can move and/or copy sections of text within the document.

• **Basic disk utilities** can save, retrieve and delete documents.

• **Printing** can make a hard copy of the text in a uniform type-style.

Advanced features

These principally fall into two types: those which give the user sophisticated control over the editor, and those which provide a high degree of formatting power and broad options for printer interfacing. Most of the programs under review contain a substantial proportion of these features. (See accompanying table.)

a. Full range of cursor movement and scrolling at beginning or end of text, preset place in document, etc.

b. "Undo," a safety measure to restore deletions.

c. File backup, another safety measure that creates a back-up copy of the edited file.

d. Horizontal scrolling allows a page of text to be wider than the number of columns on-screen. This is common to systems with a display of less than 80 characters; e.g., an unmodified Apple II, an Atari, or an Osborne 1. Also found on systems with 80-character displays, it provides the option of on-screen viewing of exceptionally wide documents.

e. Flexible printing formats can insert codes in the document to control the way it is printed.

f. Print preview allows you to see beforehand how the document will look when printed.

g. Print to disk enables the formatted document to be output to a separate file.

h. Merge-printing can leave "blanks" in documents (personalized form letters, for example) which can be filled in by data either from the keyboard or from another file on the

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Conclusions about WP software

The following conclusions should be kept in mind by the would-be buyer of current WP software:

• The state of the art has come far; even the lowest-priced packages offer functional word processing capability. Although the various programs we surveyed had problems, any one of these would help relegate your typewriter to the attic.

• Price tag alone is no indication of the presence of individual advanced features.

• There is no best or worst word processing package. The usefulness of any program depends upon your application, your system and, sometimes, your pocketbook.

• WP programs are sufficiently diverse so that you should consider using several to take care of different tasks, rather than trying to make a single package do everything.

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disk. This may be provided by a separate package such as the Mail Merge option for WordStar. In some programs, it is an integral part of the package.

i. Chain-printing can link separate documents together, with pagination kept continuous.

j. Nested printing can insert entire documents into another text at print time. In some programs, this option and the preceding one are part of the merge-printing facility.

k. Alternative printer support is provided by software. A wide range of daisywheel and dot-matrix printers, and serial and parallel interfaces can be used.

Exceptional features

This category includes many features as yet found in only a limited number of microcomputer WP software packages. Generally, these features are brought over from the mainframe and minicomputer world. Their presence in a package gives it truly versatile capabilities for document creation and outputting.

l. Micro-justification distributes extra line space equally between the words in increments that are less than full spaces.

m Proportional spacing distributes letters according to their true printed width. Together with micro-justification, this gives the printed document a nearly typeset appearance.

n. "Vocabulary-definition" ("boiler-plating") defines a glossary of frequently used phrases, expressions or blocks of text that can be inserted in the document with a special keystroke(s). This can substantially speed up the creation of standardized documents.

o. Help feature brings explanations of commands and user alternatives on-screen.

p. Multi-column support facilitates creation of two or more parallel columns, column moves and column printing.

q. Multi-level paragraph numbering or outlining is used for special scientific, technical and business writing formats.

r. Footnotes/endnotes are useful in scientific and office applications which require a wide range of styles and options.

s. "Macros" ("function keys") implement the automation of certain tasks.. A series of commands can be assigned to a specific key or saved as a "program" and run as needed. A good example is Apple Writer II's WPL (Word Processing Language).

t. Split screens provide the ability to view and/or edit two documents, or two portions of the same document, at once.

u. Marking and saving features permit portions of the document being edited to be marked and separately saved to disk.

v. Hyphen-help notes text locations where hyphens might be appropriate. This is not the same as automatic hyphenation used in text editors

Word Processing *(continued)*

on minicomputers or mainframes.

w. Spooling (or background printing) permits work on a document while another is being printed.

x. "Virtual memory" automatically shifts text between RAM and disk. As a result, the length of the document can be substantially greater than RAM size.

Buy-decision considerations

Beyond the presence or absence of certain features/functions, here are some questions to consider when weighing your buy decision:

• **Command structure:** (a) Is the program *menu-driven*, does it offer an on-screen command display? Is it *mode-oriented*, requiring you to change from one mode to another to perform tasks? It is *"vocabulary-based,"* requiring you to memorize a large number of specific commands? Or does it rely on some hybrid of all of these?

(b) Which would be the easier way for you to type in a menu command? With a single or (more common) multiple keystrokes? Or by positioning a special cursor on the desired command or icon and pressing the "Return" key?

• **Document viewing:** Is the text always displayed on-screen as it would look in hard copy (the "what you see is what you get" approach made famous by WordStar)? Or can you preview the formatted text on-screen before printing?

• **Speed:** Is the program fast enough for you?

• **Outside program and data interfacing.** Does the program generate data files which can be manipulated by other application packages? Or, can its output be easily converted? Does it include its own conversion utility?

For example, will you be able to use spelling checkers from various sources? How easily can you share files with other microcomputer users, or upload to a mainframe?

Can you run other programs (like WordStar) from within it? Or is it necessary to exit to the operating system level before executing another program?

• **Traditional WP program or something more?** Is the package strictly a word processor? Or does it also incorporate additional functions such as spreadsheet and database capabilities?

• **Documentation:** Does the program manual provide sufficient, clearly presented information? Is patching information included?

• **Support:** How much handholding will you require? What help can you expect from your local dealer? Does the manufacturer maintain a hotline with knowledgeable personnel?

Highlights of the programs reviewed and evaluations by the authors will be featured next month. ●

—Henryk Baran and Ernest Scatton

Word Processing programs and features

Programs & Publishers	Operating Environment	List Price	Advanced Features	Exceptional Features
Apple Writer II (Apple Computer)	Apple IIe	$150.00	a,b,e,f,h,i,j,k	n,o,r,s,t,u
AtariWriter (Atari, Inc.)	Atari 400/800/XL series	99.95	a,b,e,f,i,j,k	p,q
Bank Street Writer (Broderbund Software)	Apple II/II+/IIe, IBM, Commodore 64, Atari	69.95	a,b,i	—
Cut & Paste (Electronic Arts)	Apple IIe, Atari, Commodore 64	50.00	a,b,f,	—
EasyWriter** (Information Unlimited Software)	IBM PC/XT	350.00	a,b,d,e,f,g,i,j,k	u,w,x
Homeword (Sierra On-Line)	Apple II/II+/IIe Commodore 64,	49.95	a,f,i,j,k	o,q
Incredible Jack (Business Solutions)	Apple II/II+/IIe	129.00	a,b,f,h,k	p,r
Letter Perfect** (LJK)	Atari 400/800, Apple II	99.95	a,e,f,h,i,k	—
Megawriter** (Megahaus)	IBM PC/XT	99.95	a,b,c,f,h,i,j,k	i,s,u,v
NewWord (Rocky Mountain Software Systems)	CP/M-80	249.00	a,b,c,e,f,g,h,i,j,k	l,m,n,o,v,w,x
PIE Writer (Hayden Software)	Apple II,II+,IIe, Franklin Ace 100/1000	149.95	a,d,e,f,g,h,i,j,k	o
PowerText (Beaman, Porter)	Apple II+/IIe, Franklin, IBM PC/XT	299.00 (IBM $475.00)	a,b,c,d (Apple),e,f, g,h,i,k	m(IBM),n,p,q,r,s,w(IBM),x
Ready-Writer (Executive Software)	CP/M-80/-86, MS-DOS, PC-DOS	39.95	a,b,c,f,g,k	u
Smoothwriter (Digital Deli)	Atari 400/800	79.00	a,b,e,f,g,i,j	q,s,u
VisiWord** (VisiCorp)	IBM PC/XT	375.00	a,b,e,f,g,i,j,k	l,o,p,t,u,w
Volkswriter Deluxe (Lifetree Software)	IBM PC/XT	285.00	a,c,d,e,f,g,h,i,j,k	l,m,n,p,r,u,w,x
WordStar** (MicroPro International)	CP/M-80/-86, IBM PC/XT, MS-DOS	495.00	a,c,d,e,f,g,k	l,n,o,p,u,v,x

**Additional capabilities added by optional complementary program

DATA BRIEFS . . . (continued)

record grades and monitor students' progress. Typical among them is a Wichita, Kansas, district where parents can view their youngsters' progress through computer printouts assessing students on each of 214 reading and 222 math skills for which they are tested. Teachers use test results in determining grades and student needs for special assistance.

○ Now that you're getting over the shock of your 1983 tax bite, you may be ready for a new strategy in 1984. Why not look to Uncle Sam for guidance? The entire texts of the Internal Revenue Service Taxpayer Information Publications — all 66 of them — have been added to the CompuServe Executive and Consumer Information Services. Included are the IRS' most commonly asked tax questions and tax preparation tips. The menu-driven tax database covers a spectrum of topics from Individual Retirement Accounts to business expenses and childcare deductions. All this information is transcribed into 15,600 screens containing nearly seven million characters. It can be retrieved by publication identification number or by using key words to search for the publication which addresses your topic. CompuServe subscribers can order printed copies through their personal computers.

○ ADA means more bucks for programmers. Knowledge of the ADA programming language could raise a programmer's salary by as much as 20% as well as dramatically increase his/her opportunities for employment. According to AdaData, a publication of International Resource Development, Inc., "the imminent availability" of ADA compilers, and the continued support by the U.S. Department of Defense will create a boom that will put the ADA-educated programmer in the driver's seat." Demand for new trained programmers is already on the rise. Reason? Most employers cannot afford to release their programmers from work duties for the intensive 6-month ADA training period. ●

Electrical Noise (continued)

to switch on each unit independently to avoid a power surge that might damage the delicate electronic circuits. There are multiple plug-in strips that have individual on-off switches for each of the outlets, in addition to the master on-off switch. Also, as a basic rule, do not turn on the power with a floppy disk already in the drive. Some manufacturers suggest you do so, but many professionals recommend against doing so.

• If it is necessary to run long electrical cables from the outlet to the microcomputer, be sure to use special shielded wiring, available from electrical distributors. Additional protection is provided by a totally shielded cable assembly in which the connector as well as the cable are shielded.

• If your wall outlet is made for a two-prong plug, you may use an adaptor into which you can place the three-prong computer plug. However, many outlets designed for two-prong plugs are not grounded or not adequately grounded. Therefore, it is essential that the pigtail of the adaptor be well grounded to a water or heating pipe, using 16-gauge wire (at minimum) and a clamp. If there is any doubt, secure professional help.

• Connect a 16-gauge wire to the ground of each component of the system. (If in doubt, have your dealer do this.) Join all the wires and connect them to at least a 16-gauge wire that is properly clamped to a ground (water or heating pipe) in the building.

• Keep the telephone away from the CPU, disk drives, and terminal. There is an electromagnet in the phone, and ringing and dialing create electromagnetic noise. If you use an acoustic coupler, the telephone must be near the computer, but the risk is eliminated if you use a direct-connect modem.

• Keep all magnets, no matter what their size, out of the computer area. Even a large magnetic bulletin board near the microcomputer or on the wall behind it may invite trouble. Remember that many of the new paperclip dispensers contain a magnet. Also, the paperclips from such dispensers retain some of the magnetism.

• Avoid the use of fluorescent lights near the microcomputer since the ballasts used are "noisy." The lights are also harmful to EPROMs, which may be among the chips used in your computer. Constant exposure to room-level fluorescent lighting could erase a typical EPROM in approximately 3 years, but it would take about a week to cause erasure if the CPU is exposed to direct sunlight. This danger is reduced if opaque labels have been placed over the chip's window by the manufacturer or dealer.

• Avoid using a portable radio or TV set near the computer. Even an intercom may present a problem. If it must be nearby, consult with a communications specalist. (An EMI-RFI suppressor can be incorporated into the system.)

• Note if any electrical motor equipment is on the other side of the wall against which the microcomputer is placed, or if there is electrical equipment within 25 feet of the system. Sheets of thin aluminum on the walls adjacent to the computer will help reduce ambient noise, or an aluminum shield or cage might be needed around the equipment, especially the CPU, disk drives, and terminal.

• If you have x-ray equipment or very high energy machinery on the premises, it is best to secure professional assistance in blocking this type of ambient noise.

• If you are in a "sensitive data" business, avoid using microwave detectors to make a sweep for "bugs."

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HANDS ON

• The Model Diet. Softsync, Inc., 14 E. 34th St., New York, NY 10016. 212/685-2080. Available on disk for Commodore 64 and Atari, and on cassette or datapack for the Coleco Adam. $29.95. To be released for the IBM PCjr and, in an enhanced version, for the IBM PC.

The subject matter is sure to attract rapt attention. After all, how many of us would mind losing a few pounds and, perhaps, turning out to look like one of the attractive folks pictured on this program's package? Although the personal computer is a miracle of modern technology, it still will not ease the tedium of a carefully controlled weight loss program. Nor will it alleviate the hunger pangs. However, properly applied, the personal computer can be a valuable aid for keeping track of nutritional and caloric intake.

The Model Diet does not suggest a

A good way to begin a tutorial on CP/M is with a "simple" explanation of what it stands for and what its main elements are. "Control Program for Micro Processors", or CP/M, consists of three modules: BDOS (Basic Disk Operating System), BIOS (Basic Input/Output System), and CCP (Console Command Processor).

Created by Digital Research in Pacific Grove, California, in the early seventies, CP/M has fast become a standard operating system for microcomputers based on the 8080, 8085 and Z80 microprocessor. Its popularity is based on the fact that an application program, when specifically written to use the features of CP/M, will work on a wide range of CP/M machines. This "transportability" is a powerful force in the marketplace.

• **BDOS** *(Basic Disk Operating System)* is the interface between conceptual organization of information in a logical file structure and the physical organization of disk file storage. As a result, BDOS establishes the disk directory as the basis of the CP/M file structure. BDOS provides standard entry points for an application program to handle data transfers between disks, consoles, printers and all other peripherals (as done through calls to the BIOS from within BDOS).

BDOS is identical on all CP/M microcomputers. If your program follows standard CP/M conventions, it will only make BDOS calls for such things as input from the console, output to the screen and other system calls. BDOS allows you to erase a command or character entered in error. It also permits you to enter a control-S or control-Q to stop and start an output.

• **BIOS** *(Basic Input and Output System)* lets BDOS make the needed calls to actually read and write information to the disk, printer, modem and screen. Its program segments, for example, define a screen as being 24 lines by 80 columns, a disk as storing 181K bytes of information, and so

INSIDE CP/M

on. BIOS is machine-specific. Therefore, when a microcomputer manufacturing firm buys a license to distribute CP/M, it must create its own BIOS compatible with the particular characteristics of its hardware.

Many programs make direct calls to the BIOS. This diminishes the transportability between CP/M machines. Therefore, many programs have special "patch" areas to allow you to put in calls that are specific to your microcomputer's hardware while safeguarding the programs' transportability.

• **CCP** *(Console Command Processor)* is the "human interface" with CP/M. It interprets and directs commands typed at the system console (following a prompt symbol). The built-in CP/M commands (ERA, DIR, REN, SAVE, TYPE, etc.) are stored in the CCP module which, when actuated, makes calls to the BDOS and the BIOS.

The CCP is usually identical from machine to machine although a number of very good enhanced CCP's are now available through public domain and commercial sources. Among the free public domain enhancements, the ZCPR processor (available from *S-100, CP/M User Group, New York Amateur Computer Club, P.O. Box 106, Church Street Station, New York, NY 10018*) provides a new "TYPE" command that stops at the end of each screen. It also provides an "ERA" function that will query you regarding the determination of each file you want deleted, and it allows you to define a "search path." (A search path allows your computer to search along a path, on a disk-by-disk basis, until it finds the file you have requested.)

The entire CP/M system is usually stored on the first track or "system-track" of your disk. It is called into memory when you "cold boot" your machine. In some instances, the BIOS is actually stored in a chip that is permanently set in your computer. Only a small portion of the BIOS (usually called the CBIOS or Configured BIOS) is brought in from disk. The CBIOS in turn calls on the BIOS stored in permanent read only memory. The flow of the system process is as follows:

• You make a request of CCP to load and start to run a program.

• The program eventually makes a call to BDOS which, in turn, makes a call to CBIOS.

• The CBIOS then calls the BIOS which then performs the physical input and output.

• Control is then returned back to the CBIOS; then to the BDOS; and finally back to the program which made the original request.

• When the program has completed its run, it makes a special "warm boot" call which terminates the program, loads in the CCP from disk, and then runs the CCP.

Of course, when you run a transient program such as WordStar or dBase II, the CCP is not needed and the 1 to 2K bytes of memory that CCP takes up can be used by the application program. When you "warm boot" your machine, the CCP is brought back in from the disk and then gets control of your console again.

In future columns I'll cover the features of each part of the CP/M system and how to use the standard CP/M programs (PIP, STAT, etc.). I'll also unravel such mysteries as the System Map, the Vector Jump Table, what a "BDOS Error" is, and other such techno-babble.

Send in your questions and comments. I will try to answer them in upcoming issues. ●

—Ross M. Greenberg

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new miracle method for faster weight loss. Rather, by careful use of the program's routines, you will be able to monitor and adjust your daily intake to achieve a balanced diet with minimal caloric content. Potentially, the program could be a definite boon to calorie counters everywhere. Unfortunately, the Commodore 64 version we received gave us more difficulty than we bargained for as we attempted to put the package through its paces.

The program's intent is twofold. Based on your personal physical characteristics and lifestyle, it will calculate a customized set of dietary requirements. This is presented as a video display of daily vitamin, mineral and caloric intake. For some reason, the requirements for Vitamin E were left out. Also, we would have liked to have produced a hard copy of this listing for comparison with other individuals, but were unable to coax the program into doing so. However,

we were able to save the daily requirements to disk for future use by the program. To calculate the daily nutritional requirements, the computer asks an extensive series of questions, some of which could prove confusing to the inexperienced. For example, the question about frame size (S-M-L) evoked considerable discussion regarding methods of definition. (Suggested body weight turned out to be rather sensitive to

PC Money Talk

• **User groups and taxes.** If you have vainly tried to obtain tax-exempt status for your user group, your plight is common to that of other microcomputer clubs — all but one, that is. The Capitol City User PC Group of Silver Springs, Maryland, has become the first such club to be recognized by the IRS as a non-profit community service organization (under Section 501 (c) (4) of the IRS Code) after waging a 15-month campaign. While having tax-exempt status is certainly worthwhile, wise club officers are finding yet another major advantage: eligibility to use meeting space in public buildings at nominal cost. Because the process is so protracted and complicated, treasurer Jimmie Faris recommends that, to maintain continuity, an application for tax exemption be conducted by the same person throughout the proceeding. It is preferable that the individual be a CPA. Also helpful is IRS publication 557, *Tax Exempt Status for your Organization*, available free of charge at any IRS office. The documentation of Capital City Club's campaign for tax-exempt status is available on an IBM-formatted disk for $6 from *Capital City Software Exchange, P.O. Box 6128, Silver Springs, MD 10906.*

• **Computer Price Alert** is published 20 times a year. Each issue compares prices on major brands of microcomputers, software, peripherals, accessories, diskettes and supplies most in demand at over 300 merchandisers across the country. No advertising is accepted. Sample issues are $4 each. Subscriptions are $36 for 12 issues, $48 for 20 issues. *Computer Price Alert* also provides a for-a-fee customized price research service. For information, contact *Computer Price Alert, P.O. Box 574, Cambridge, MA 02138. (Subscriptions – credit card only) 800/824-7888, Operator 71. (Other) 617/354-8116.*

INVESTMENT GUIDES

• **Buying and Selling Stocks Using the IBM PC.** *By Jeremy C. Jenks and Robert W. Jenks. John Wiley & Sons, Inc. $17.95, book (241 pages) and $49.95, disk.* This guide provides an overview of the dynamics of the stock market. It describes the methods professionals use in selecting stocks to determine which stocks are over- or under-valued, and discusses the sources of financial data. It explains how to set up the computer system, build a database, and organize files. There are nine BASIC programs for doing valuation analysis in stock selection based on price/earnings ratios, growth estimates and inflation calculations. The programs are also available separately on a disk programmed with valuation data describing 30 stocks with attractive investment characteristics.

• **Computer-Assisted Investment Handbook.** *By Albert I.A. Bookbinder Ph.D. Programmed Press, 2301 Baylis Ave., Elmont, NY 11003. 516/775-0933. Handbook (220 pages), $19.95; 50-program diskette, $100.* The book consists of 50 computer programs for trading, investing and planning strategies in a simplified version of BASIC. These are also available on a diskette in Apple, TRS-80, IBM PC, or MS-DOS format. The first 20 programs feature statistical analysis and forecasting. A second section covers analysis of bond yields, commodities and foreign exchange. The third section includes programs for evaluating puts and calls, forecasting stock prices and earnings, and future values of stock exchange indexes.

• **Portfolio Tracker.** *By William C. Brasuell, 3837 Suncrest Ave., San Jose, CA 95132. 408/926-9888. 44 pages. $9.95 plus $1.50 for postage and handling. (California residents add 6½% sales tax, or 64 cents per copy.)* This application guide with instructions for setting up a financial investment portfolio system is written for VisiCalc and other spreadsheet programs. It is designed to reduce the effort of tracking changes in portfolio values and in maintaining records of transactions in stocks,

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this parameter.

The next step required entering of daily meal information. At this point, we discovered how little we really know about what we eat. The program claims to have over 2,000 food items on file. (Yet, we were rather surprised to find that the New York-based concern failed to catalog bialys, cream cheese and lox.) For items not catalogued, you have the option of entering nutritional information into a user file. The data entry process was rather time consuming — up to an hour for a day's consumption. The procedure was not without its surprises, however, as we discovered freeze-dried coffee should be entered as 0.17 ounces of dry product and not 8 ounces of brewed liquid.

The real clincher came when we attempted to list the daily totals for comparison to our daily nutritional requirements. In three out of the four attempts, the program spontaneously aborted with an attendant loss of all the entered data.

The nutritional information in the food files seemed accurate enough. This was readily confirmed by a comparison with the values listed in the U.S. Department of Agriculture Handbook No. 8, *Composition of Foods, Raw-Processed-Prepared.* The program documentation is limited to a detailed description on how to use the package. Virtually no supportive explanations on health and nutritional requirements, the effects of deficiencies and proper dieting procedures are given. The only detail supplied — by option four in the program itself — presented some brief nutritional information. Supporting references were lacking as well.

If you are already a confirmed calorie counter or nutrition watcher, then you will probably find this program useful. Being able to enter all the data at one nightly sitting and get a quick daily total will probably save some time over your present methods. However, many others, we believe, will find the required procedures too tedious and time consuming for everyday use. ●

—Morton A. Kevelson

TOOLS AND CONCEPTS

• **IBM transports as Kaypro upgrades.** The number of viable choices for would-be purchases of transportable computers has increased significantly due to the introduction of yet another machine.

This is not, however, just another new product. It's the IBM Portable Personal Computer which, unlike its IBM look-alike rivals, comes with the right three-letter logo. The $2,795 30-pound unit uses the same 8088 microprocessor used in the IBM PC and PCjr. It comes equipped with 246K RAM, a 9-inch, 25-line by 80-character amber monitor, a 360K-byte disk and an adapter to connect an external disk drive. There are five internal expansion slots.

Potential buyers will now be able to compare the portable IBM PC with some two dozen more-or-less compatible look-alikes, as well as with a new 16-bit transportable computer to

bonds, options and futures contracts. Short, long and partial sales are accommodated by the system.

A 30-day money-back guarantee on copies ordered by mail is offered to BMR readers.

PRICE CUTS AND PROMOTIONS

• Key Tronic KB 5150 and 5151 IBM PC keyboard prices have been reduced — from $269 to $209 for the KB 5150. Also down — from $295 to $255 — is the KB 5151 which features top-row function keys with removable template, and separate cursor keys. For·information, or to order, call *800/262-6006*.

• Fuji Film floppy disk promotion offer. The purchase of five boxes of Fuji Film floppy disks gets you a free 50-disk file box (worth $29.95 retail). The file box is made of anti-static plastic and features a key-locking removable lid. Disks can be purchased in any size or configuration.

• Microtek reduces prices for entire Slotware product line. Major price reductions cited include the DUMPLING-GX graphics printer card — from $175 down to $89.95 — and a 128K memory card, formerly $478, now available with CP/M enhancement diskettes for $299. The price of Q-DISC 128K disk emulation card, formerly $529, has dropped to $399. It comes with CP/M and Pascal enhancement disks, VisiCalc expansion software, and a MAGICALC spreadsheet program. ●

be introduced by Kaypro soon. The machine will feature a 10M-byte hard disk. Its introduction will follow that of the enhanced Kaypro 4. According to the company, the machine's computing power has been nearly doubled with the replacement of the original Kaypro 4's Z80 microprocessor with a processing speed of 2.5 MHz by a 4 MHz Z80A chip. Also added are a built-in 300-baud modem equipped with the Super-term data communications package, and an additional RS-232 port. The display has also been improved to support graphics and provide sharply defined type fonts (5 x 7 versus 8 x 16 pixels), a blinking cursor, dual intensity, highlighting, and an additional 80-character line (from 24 to 25). The price of the enhanced unit is $1,995 — $200 more than its original version.

• AppleLine coaxial cable attachment units enable Apple 11I, Macintosh and Lisa computers to emulate IBM 3278 terminals and to access information stored in IBM networks, using existing cable installations and emulation software. Each AppleLine unit supports one Apple computer and connects to it via its serial port. The unit could be up to 5,000 feet away from the IBM 3270 cluster controller. An alternate means of direct connection between Apple computers and IBM networks is provided by the Apple Cluster Controller. AppleLine units are priced at $1,295. LisaTerminal, Access 3270 (Apple III), and MacTerminal emulation programs go for $295, $150, and $99, respectively. The Apple Cluster Controller costs $4,500 for a three-port version, and $7,000 for seven ports.

• 12-button keypad for the education-oriented Group Response System provides 12 response options including the numbers 0 through 9 and the words "yes" and "no". The Group Response System hardware software package links up to 60 participants to an Apple II or IBM PC computer. Each respondent uses a hand-held keypad which records his/her answers to multiple choice questions. The system then tabulates responses and displays a color bar chart of the results. The Group Response System with software, manuals and 15 Response Pads costs $1,400 for the Apple II, and $1,800 for the IBM PC. Additional pads are $65 each. Available from audiovisual dealers or *Reactive Systems, Inc., 40 North Van Brunt St., Englewood, NJ 07631. 201/568-0481.*

• Key Tronic replacement keyboards for the handicapped enable individuals who do not have the use of both hands to fully operate IBM PC and Apple 11 personal computers. Alternate action switches on "Shift," "Control," and "Alt" keys overcome the previous obstacle of having to depress two keys simultaneously. The price of the special keyboards are the same as their standard Key Tronic counterparts. Available in various models. *For inquiries, call: 800/262-6006.* ●

SOFTWARE

• Symphony is an integrated software package which combines upgraded versions of the features (spreadsheet, graphics and an information manager handling 8,000 records) of Lotus Development Corp.'s preceding 1-2-3 productivity product with communications capabilities, and a word processor. A noteworthy feature is a windowing system which, as data is changed in one window, automatically updates information in all other windows. Symphony runs on a single floppy disk, but requires a minimum of 320K-bytes memory. With its database working at full capacity, it requires 640K-bytes, the maximum currently available RAM for the IBM PC on which, with the XT, it will run initially. The package will be adapted subsequently for all computers which now run 1-2-3, including TI, Zenith, Wang, DEC, Bytec, Grid and Compaq systems. Symphony is priced at $695, but is initially available for $200 to 1-2-3 owners who trade in their systems for the new productivity package.

• dBASE 11 multi-user version allows sharing of centralized database files by several microcomputer workstations. The program features record and index lock-out capabilities that allow only one user at a time to enter changes. This prevents the "crash" or "freeze" that may occur in multi-user systems when two people try to use the same records at the same time. The program also eliminates the possibility that two different sets of changes could be made simultaneously. The new system initially supports the 3Com EtherSeries network. Soon, it will also support the Corvus Omninet, Novel Netware and Orchid PCnet. dBASE 1I multi-user version is marketed in 4-user modules, with the first module priced at close to $1,000 and additional modules at approximately $500 each. A discount is offered to current users of registered dBASE 11 systems allowing them to convert to the new version for $300. *Ashton-Tate, 10150 West Jefferson Blvd., Culver City, CA 90230. 213/204-5570.*

• DATAEASE is a relational database management system claimed to provide a more comprehensive applications development program than dBASE 1I, but easier to learn and use. The system, which can freely convert and use dBASE II files, is the central component of the SOFT-EASE family of integrated produc-

Words Processed

• **Getting the Most out of WordStar and Mail Merge — Things Micropro Never Told You.** *By M. David Stone. Prentice-Hall $14.95, paper; $21.95, cloth.* A guide to the expanding user applications of WordStar and Mail Merge, beyond word processing and mailing lists. For example, the book discusses how the two programs can be used together as a simple data base. Other applications include the use of these programs to enhance the capabilities of other software packages. Also explained are the unsupported features of the programs such as proportional spacing.

• **Beyond Beginning BASIC.** *By Ralph Vickers. 220 pages. dilithium Press. $14.95.* A step-by-step tutorial designed to help readers understand advanced programming concepts in order to create faster, more efficient routines and applications programs. Written for the TRS-80 Model I (Level II) and Model III, the book contains 33 programs including utilities such as screen dumps and error trapping. It also includes an introduction to assembly language, and information on graphics, PEEK and POKE.

• **BluePrint Series.** *Onset Services. $12.50 per set, plus $1.50 for shipping costs.* Sets of poster-sized flow charts designed to help users understand the mechanics of major software packages. Packages include WordStar with Mail Merge, CP/M, PC-DOS, dBase II, Lotus 1-2-3, VisiCalc and SuperCalc. There is a separate set for each package, with the first chart offering an overview for beginners including keystroke commands and the functions of each command. Subsequent charts deal with increasingly complicated functions. Charts can be ordered from *Onset Services, 318 South B. St., San Mateo, CA 94402. 415/573-1919.*

• **How to Build a Program.** *By Jack Emmerichs, Tab Books, Inc., Blue Ridge, Summit, PA 17214. 717/794-2191. 352 pp., $21.95.* This guide to developing the structure and detailed logic that makes a program work outlines the program development process. It addresses the individual steps from origination of the initial concept and building an instruction set to testing, debugging and using the final program. The author shows what can happen during the program writing process, including bugs that may crop up, the methods used to resolve them and the limitations that the program writer faces. The emphasis is on how to write instructions that can be understood by both the machine and the computer operator. The book includes program listings in an independent language sketch code, as well as 20 program listings in BASIC and Pascal.

• **Programming Better Writing.** *By Helen Hayward Jones. 176 pages. Prentice-Hall, Inc. $7.95, paper; $14.95, cloth.* The author offers a number of approaches to help readers organize their planning and writing processes toward a more effective writing style in business and school communications. By using the thought processes of a computer programmer as an example, she illustrates the necessary steps in composing effective reports and letters. The book discusses basic writing problems specifically related to management writing and covers vocational communication from IBM manuals to insurance policies.

• **Computer Preparation for the SAT.** *By William J. and Nancy Birnes, Designers. Arco Publishing, Inc., $69.95, boxed set.* Based on Arco's SAT manual, the program administers a diagnostic test to students and compares the results with the median SAT scores of the freshman class of the college of his/her choice. Should the student score lower, the program assigns appropriate study units and coaches the student interactively to make up the deficiencies. After administering a final diagnostic test, it then compares the two test results. (If the student is still not up to par, he can take the test over again.) The SAT package includes three doubled-sided course diskettes, the SAT preparation and exercise books and a student management disk which tracks individual student test-scores and study schedules. Other features include a college database of median SAT scores of freshmen at over 1000 colleges, and some 2500 SAT questions automatically generated at increasing levels of difficulty as student performance improves. Initially designed for the Apple II, II+ and IIe computers, the program will run on Commodore 64, IBM PC and TRS-80 Model 4 systems. ●

PERSONALIZED REPORT FOR: TRS-80

April, 1984   Joel Sampson, Technical Editor

* NEW TANDY SOFTWARE RELEASES

Radio Shack has recently announced several new software products. Among
them are the following:

o INVESTMENT ANALYSIS

Three programs for the Model 100 portable computer make up this financial
package. The Fixed Income Security Evaluator calculates information to aid
in buying and selling fixed income securities. The Commission Calculator finds
the commission charges for stock transactions, while the Option Strategy Evaluator
can be used with put and call option purchases and sales. Investment Analysis
requires 16K of memory and a tape recorder; it lists for $69.95.

o GRAPHICS PAK

Business users may also like this $19.95 program for the PC-2 pocket computer
and printer. It prints horizontal or vertical bar charts, bar-segment charts,
pie charts, line charts and point charts. Various labeling and shading options
are available, and data can be stored on tape.

o HI-RES SCREEN PRINT UTILITIES PROGRAM

This program runs on the TRS-80 Color Computer. It does a screen dump of
the video display in color with the Tandy CGP-220 Ink-Jet Printer. Other Radio
Shack bit addressable dot-matrix printers can be used for a high-resolution
black and white output. The utility is $9.95.

o ASSEMBLY LANGUAGE DEVELOPMENT SYSTEM

This $149 program will be of interest to Model III/4/4P programmers. It
is a complete A.L. system with a text editor, assembler, linker, debugger and
a file transfer system. The file transfer program will transfer files between
Models I, II, III, 4, 4P, 12 and 16.

* MODEL 100 DISK/VIDEO INTERFACE

The popular Model 100 lap computer can be expanded with a new Disk/Video
Interface. The interface has a 5-1/4" floppy disk drive with a storage capacity
of 184K bytes. It also has an output for a video monitor or television and can
display up to 80 characters by 25 lines. Although the complete character set
can be displayed on the CRT, dot graphics are not supported.
The interface connects to the Model 100 via the 40-pin connector located
on the bottom of the computer. A zero insertion-force socket connects the two
units.
Listing for a somewhat expensive $799, it should be of most interest to Model
100 owners who do not own a second computer. Radio Shack does not mention whether
it runs from batteries or AC power (my guess is AC). A second drive is available
for $239.95.

* CP/M TUTORIAL - TRANSIENT PROGRAMS

Last month I discussed CP/M's built-in commands: DIR, REN, ERA, TYPE, USER, and SAVE. For other DOS commands, transient commands are used. A transient command is loaded in from disk to the temporary (transient) area of memory and executed. Since these programs are stored as files, they can be ERAsed and need only be present on disks which need them. This gives you more usable disk storage for programs and data.

The STAT transient command performs a variety of useful functions. If you simply type STAT, followed by Enter (and STAT is on the disk), the free memory available on the disk will be displayed on the terminal. The protection status, Read Only or Read/Write will also be displayed. To do the same for drive B, type STAT B:. A frequently used extension is STAT *.*, which lists all files and the number of records and bytes each file occupies. The "?" and "*" wildcards can also be used.

You can also change the protection status of a disk with STAT. For example, STAT *.* $R/O will make all files of the disk Read Only--they cannot be erased accidentally. To reverse this, enter STAT *.* $R/W, which returns it to Read/Write status.

You can temporarily protect a disk by entering STAT A:=R/O. Either control C or a system re-boot will return the disk to Read/Write status.

To display the characteristics of a disk drive, you can use the extension STAT DSK:. This displays how data is written to the drive and other information. To find out device assignments, type STAT DEV:. STAT VAL: will tell you which devices are allowed.

STAT can also be used to reassign the devices, allowing you to perform some useful functions which relate to linking in LDOS. I frequently use two device changes: STAT LST:=TTY: which dumps all data that would normally go to the parallel printer port to the serial RS-232 port. If you have another terminal connected to the port, you can toggle output to it with control-P, which normally toggles the printer on and off. If you want to connect an external terminal to your system, use STAT CON:=TTY:. This is a way to easily use your computer from a remote location using only a long cable, another terminal and STAT!

One of the most-used transient commands is PIP, Peripheral Interchange Program. PIP's primary use is to copy disk files (programs and data). For example, to copy SALES.BAS from drive B to drive A, you enter PIP A:=B: SALES.BAS. To backup all files, use the wildcard command, PIP A:=B: *.*.

Copying a file to another name is accomplished by typing PIP SALES.BAK = SALES.BAS. This duplicates SALES.BAS into a second file, SALES.BAK. The original file is unchanged.

PIP and STAT both have many extensions which allow them to do a variety of other tasks. Consult your manual or a book for more hints.

* REVIEWS

o QBAX - CP/M BACKUP UTILITY

QBAX is an incremental back-up utility for CP/M that keeps track of which new and modified programs you have not backed up. Good data management dictates that you make copies of all files. However, backups can be difficult to keep track of, particularly if you have a disk full of short programs.

You back up your files via QBAX instead of PIP, and it knows which files are new since the last backup. Some of the options with QBAX include a report of files that need backing, verbose backup of those files, backup with a query, and multiple backups.

The utility includes a very good 19-page manual that contains many examples. Four pages of the manual are brief UNIX-style documentation that advanced users will like.

In summary, this is an extremely useful utility. If you have a hard disk or a floppy with large capacity, QBAX is almost a necessity. It makes backups and data management easy, and the first time you really need it (if you crash a valuable business disk), you will find the $30 cost will have been well spent.

QBAX is available from Amanuensis, Inc., R.D. #1, Box 236, Grindstone, PA 15442.

* REVIEWS BY ALAN B. ABRAHAMSON, GUEST EDITOR

o AUKS/CFS Data Base Management System, Market Masters, 209 Kenroy #5, Roseville, CA 95678. Special price $20.

Database systems have existed for the TRS-80 computers for some time. Although many are on the market and some are very good, all of them have some limitations that can only be circumvented by custom database programming. However, if your needs are simple and your funds are limited, this may be the package for you.

AUKS/CFS stands for Auk's Computer Filing System, written by Dave Alva. This particular system intrigued me because it had received very good reviews. When the special offer price of $20 came along, it was irresistible.

AUKS/CFS is written in BASIC, although a machine language sort is provided as well as an ISAM (Indexed Sequential Access Method) filing system. The system is modular and easy to use if you understand the concepts of files, records, fields, screens and cursor.

The programs are supplied on a Model 1 single-density, 35-track disk. A file transfer utility called SCOPY is supplied for one-drive users (a nice touch). Model III users must use the CONVERT utility to copy the files over to TRSDOS 1.3. Machine language sort modules, filer module and print module are supplied in both 32K and 48K versions to fit your particular equipment.

Documentation is adequate for the complexity of this system. Most users should have no problems in understanding this database concept.

By comparison to PROFILE III Plus, AIDS III or ENB, there is a lot to be desired in terms of ease of use, sophistication and power. The modules are lacking in "error trapping" techniques, and it is easily possible to "crash" the program. I would not recommend this software in a business atmosphere. For home use and at this introductory price, few better values can be obtained.

The program's limitations are: 35-track single-density - 350 records; 40-track single-density - 400 records; 40-track double-density - 720 records; sorting in alpha only - use leading zero's; record length - 255 bytes; and number of drives used for data storage - 1.

The program's credits are: flexible label formats - 1 or 2 or more; flexible listing formats - user selects criteria; partial or range searches - user-controlled; command processing - predefined print formats; and ISAM filing - fast access to data.

My major complaint is that you must continually reenter the file name designation when jumping from module to module. This construct could have been easily avoided, and the database prefix could have been saved in memory for use by the next module. Date entry is also not saved or picked up from the system date (TIME$). Another easy fix. If cost is not a basis for judgment, then AUKS/CFS would not rate high. However, if cost is a criteria, then AUKS/CFS would be in the top three of the DBMS (Data Base Management Systems) world.

o DDA, DISK DRIVE ANALYZER, J & M Systems, Ltd., 137 Utah NE, Albuquerque, NM 87108, $79, single-sided Model III. J & M has finally made the process of aligning or checking disk drives a pleasure instead of a hassle.

DDA is provided on a special self-booting, copy-protected diskette containing the diagnostic program. They also provide a very special digital alignment disk manufactured by Dysan. This disk cannot be duplicated without special equipment.

DDA performs nine basic functions:

1. Clamping Test. Checks hub clamping (eccentricity).
2. Quick tests. Checks spindle speed, index hole timing, radial alignment, azimuth (head angle) and hysteresis (directional seek).
3. Speed Test. Checks drive speed vs. 300 RPM.
4. Index Hole Timing. Checks elapsed time from index hole edge to beginning of sector ID mark.
5. Read Sensitivity. Checks read amplitude.
6. Head Alignment. Checks head position relative to good sectors on the DDD disk.
7. Directional Seek. Measures hysteresis in the head carriage mechanism (head position).
8. Head Rotation. Measures the angle (azimuth) to the track center line. This should be parallel to the track tangent line.
9. Analog Alignment. Allows you to check drive with your oscilloscope and an analog alignment disk.

When you explore any of these test modes, you most often will be presented with a graphic representation of the data on your CRT. This type of analysis will allow you to adjust your drive to comply with known standards while under control of the DDA program. This is so much easier than using an oscilloscope to accomplish the same task. Minute adjustments can be made, and your graphic should indicate the value of the adjustment you have made. If you are not hesitant about getting into the "gut" of your hardware, then this program is for you.

The software is very well done, and the program and digital alignment disk are worth the price. Professionally done drive alignments are about $40 per drive. Just two alignments will recoup your investment. Unfortunately, the Model I version is not yet completed, but I am advised that it should be available in March (single density only).

* GARBAGE COLLECTION, (STRING REORGANIZATION)

One of the most annoying problems in the Microsoft Basic system is affectionately called "garbage collection." This process happens automatically when your computer needs more string space in which to manipulate data. The CLEAR statement allocates the amount of free string area that BASIC may use in your program. If this space gets used up, then BASIC looks through memory to see if any of that area may be reused, provided that the existing string information has been nulled. This process could take up to ten minutes if you had cleared about 32,000 string bytes in your program.

Judicious use of string manipulation can avoid or reduce this process. Whenever possible, use arithmetic functions rather than string functions for logic statements. Two statements are provided in Disk Basic that really help this situation-- they are INSTR and MID$ (left of the equal sign).

The INSTR (position, mainstring, substring) function will take a main string and search it for a substring and provide a numeric position of the start of a match. No garbage is produced.

MID$ (oldstring, position, length) = replacement strength,will replace any part of an oldstring with a specified replacement string. This, of course, could be accomplished through the more normal usage of the LEFT$, RIGHT$ or MID$ functions. The advantage here is that no null strings will be created and therefore no garbage is produced.